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VALITSUSE SEKKUMISE OLULISUSVÄIKETALUDES TOIDUGA KINDLUSTATUSE PARANDAMISEKS: JUHTUMIANALÜÜS NIGEERIA ENUGU OSARIIGIST

IMPORTANCE OF GOVERNMENT INTERVENTION IN SMALL SCALE FARMING TO IMPROVE FOOD SECURITY: A CASE STUDY OF ENUGU STATE NIGERIA

Master´s thesis
Agri-Food Business Management

Supervisor: Ants-Hannes Viira, PhD

Tartu 2021

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Pealkiri: Vvalitsuse sekkumise olulisus väiketaludes toiduga kindlustatuse parandamiseks: juhtumianalüüs Nigeeria Enugu osariigist

Lehekülgi:62	Jooniseid:13	Tabeleid: 4	Lisasid:6

Osakond: Majandus- ja sotsiaalinstituut
ETIS-e teadusvaldkond ja CERC S-i kood: S187
Juhendaja: Ants-Hannes Viira, PhD
Kaitsmiskoht ja -aasta: Tartu 2021

Vajadus väiketalunike tegevust edendada on oluline ja Nigeeria valitsus pole nendele põllumeestele piisavat tähelepanu pööranud. Et valitsus vähendaks toiduainete importi, samal ajal tagades toiduga kindlustatust, säästaks väliskaubanduskuludelt, mida saaks suunata teistesse majandussektoritesse, ja saavutaks toiduga kindlustatuse, peab väiketalunike tegevuse edendamine ja julgustamine olema nende peamine prioriteet.

Selle magistritöö eesmärk on hinnata valitsuse rolli väiketalunike tegevuse edendamisel ja Nigeeria Enugu osariigi toiduga kindlustatuse parandamisel.

Uurimistöös kasutati kombineeritud uurimismeetodit, et saada vastuseid uurimisküsimustele. Andmed koguti veebipõhise Google'i dokumendilingi kaudu (53), 44 küsimustikku viidi füüsiliselt põllumajandustootjatele, kellel pole e-posti, ja tehti 3 telefonikõne intervjuud. Samuti kasutati toidu- ja põllumajandusorganisatsiooni (FAO) aegridade andmed perioodi 2014-2019 kohta.

Uuringust selgus, et Enugu osariigi väiketalunike ees seisavad paljud väljakutsed. Valitsuse ebapiisav tegutsemine väiketalupidajate tegevuse edendamisel avaldub halbade ja algeliste ladustamisvõimaluste ja paljudes teiste probleemide näol. Kõik need probleemid on viinud selle riigist on saanud suur toiduimportija, et rahuldada oma kodanike toiduvajadusi, kuna toidu impordi ja ekspordi suhe oli aastatel 2016–2018 ja 2017–2019 vastavalt 13% ja 11%.

Märksõnad: Valitsuse sekkumine, väiketalunikud, toidujulgeolek.

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Estonian University of Life Sciences Kreutzwaldi 1, Tartu 51014		Abstract of Master's Thesis	
Author: Ifeanyichukwu Henry Mbagwu		Curriculum: Agri-Food Business Management	
Title: Importance of government intervention in small scale farming to improve on food security: A case study of Enugu State Nigeria**.**			
Pages: 62	Figures: 13	Tables: 4	Appendixes: 6
Department : Institute of Economics and Social Sciences Field of research and (CERC S) code: S187 Supervisors: Ants-Hannes Viira, PhD Place and date: Tartu 2021			

The need for government to encourage small-scale farmers is important, and the Nigerian government has not paid much attention to the yearning of these farmers. For the government to reduce importation of foods to meet up the nutritional value of its populace, save foreign exchanges that could be channeled to other economic sector, and achieve food security, encouraging the small scale farmers must be one of their top priority.

This Master's thesis aims to evaluate the important roles of government to small-scale farmers in improving the food security of Enugu State, Nigeria.

This research work employed a combined research method to get answers for objectives set for this study. Data was collected through an online google document link (53), 44 questionnaires were administered physically to farmers who don't have email, and 3 phone call interviews and equally, time-series data from Food and Agriculture Organization (FAO) spanning 2014 – 2019 was collected.

The study found out that many challenges face the small-scale farmers in the study area due to ineffective government roles in small-scale farmers' activities manifested as the use of poor and rudimentary storage facilities and many others. All these problems have led the country to be a major importer of food to meet the nutritional needs of its citizenry, which the value of food import-export ratio stood at 13% and 11% in 2016-2018 and 2017-2019 respectively.

Keywords: Government interventions, small-scale farmers, food insecurity.

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Acronyms

ACVCD: Agricultural Commodity Value Chain Development

ADP: Agricultural Development Project

AETA: Agricultural Extension Transformation Agenda

AMTDCs: Agricultural Marketing and Trade Development Corporations

APP: Agricultural Promotion Policy

ARTP: Agricultural and Rural Transformation Program

ATA: Agricultural Transformation Agenda

DFFRI: Directorate of Food, Roads and Rural Infrastructure

FAO: Food and Agriculture Organization

FNS: Food and Nutrition Security

GESS: Growth Enhancement Support Scheme

GFSI: Global Food Security Index

GR: Green Revolution

IFAD: International Fund for Agricultural Development

NAFPP: National Accelerated Food Production Programs

NAICPP: National Accelerated Industrial Crops Production Program

NIRSAL: Nigerian Incentive-based Risk-Sharing System for Agricultural Lending

NPAN: National Strategic Plan of Action for Nutrition

NPFN: National Policy on Food and Nutrition

OFN: Operation Feed the Nation

RBDA: River Basin Development Authority

SCPZ: Staple Crop Processing Zone

INTRODUCTION

Small-scale or smallholder farming systems can be used interchangeably to describe family-run farm units that employ little non-family labor. Food and Agriculture Organization (FAO) estimated that there were about 500 million small-scale farmers globally producing foods for approximately 2 billion people in the World (Wegner and Zwart, 2011). In Nigeria, small–scale farmers account for approximately 85 percent of overall agricultural output (National Bureau of Statistics, 2015). However, they are resource-poor farmers, who rely on the family labor with little to no savings or storage. The tools and farming methods used by these farmers are very labor intensive. More so, their financial state is very poor coupled with lack of priority on the part of the government policies resulting in deficient infrastructure foundation, the market access inadequacy. All these explained reasons are behind low production, high food prices, inflation, underdevelopment, and poverty and food insecurity all occurring at the same time (Mgbenka, 2015).

The problems of hunger and poverty are predominant in Nigeria despite its natural abundant resource endowment position. Nearly about 82 million of Nigerians live below a hundred naira per day which was equivalent to less than one dollar per day; this is coupled with youth unemployment which is nearly 90 percent (Eze, 2003). More so, food expenditure accounts for 56.5% of household income for urban and poor communities in Nigeria (National Bureau of Statistics, 2019). This is worrisome in that when basic food costs rise, vulnerable citizens bear the brunt with attendant food insecurity. Deficit food supply is premised on widening food gap occasioned by deficit food supply and ever increasing demand resulting to serious problem of food insecurity in Nigeria.

Food security is one of the fundamental objectives of most agricultural programs in Nigeria; food insecurity has assumed new dimensions in all aspects of Nigerian life as a result of its perennial nature. Government programs and policies have been initiated to address this long standing issue since 1962: starting with the 1st to 4thNational Development Plan of 1962–68; 1970–74; 1975–80 and 1981–85. Accordingly, National Accelerated Food Production Programs (NAFPP) in 1972, River Basin Development Authority (RBDA) in 1974, Agricultural Development Project (ADP)

in 1976, Operation Feed the Nation (OFN) in 1976, Green Revolution (GR) in 1980, Directorate of Food, Roads and Rural Infrastructure (DFFRI) in 1986, National Accelerated Industrial Crops Production Program (NAICPP) in 1995 and Agricultural and Rural Transformation Program (ARTP) in 2000 are some of these programs (Okolo, 2006). Unfortunately, none of these can be described as fully successful, this is stemming from several technical factors coupled with frequent cases of funds diversion and underfunding of agricultural sector resulting in poorly implemented agricultural problems.

It is worthy of note that Nigeria is an agrarian country with over 80 percent of its land mass predominant in rural areas (FMARD, 2000; Okolo, 2006). In fact both agriculture and rural development are critical to the socio-economic development of Nigeria and any policy which aims at transforming the rural sector is likely to have favorable impact on agriculture of the country. However, there is notable government under investment in the rural area in terms of poor infrastructural facilities and inadequate social amenities resulting to massive emigration of young people to the urban areas in search of jobs that pay attractively higher wage than what is offered in the rural areas.

Without major support to the small holder farmers which formed the large proportion of rural populace through targeted policies and government interventions to raising production of desirable food materials and increasing their incomes to eradicate poverty, existing food insecurity problems will escalate. Therefore, this study seeks to evaluate the importance roles of government to small-scale farmers in improving food security of Enugu State, Nigeria. The objectives of the study were to review the National food supply and demand in the country between the year 2014 - 2019; examine the impacts of food importation on the foreign exchange earnings of Nigeria; identify key challenges faced in the realization of these policies in agricultural sector especially as it affects small scale farmers and identify the roles government plays in the agricultural sector to ensure food security.

Other sections of this study comprise the second section which is the literature review that explores the concepts of small-scale farming, food security, Nigerian agricultural outlook and food insecurity, government interventions in addressing food insecurity and a review of government interventions in Nigeria. The third section will explain the methodology used and will give information about the data that is collected. The study employed both primary and secondary data.

The primary data was obtained from a sample survey of 100 small-scale farmers and secondary data on food demand and supply, agricultural export, and net food export collected from time series database of Food and Agriculture Organization (FAO) spanning 2014 – 2019. Descriptive statistics and trend analysis were used to achieve the objectives of the study. The fourth section will present the results, discussion, conclusion and recommendation for the Study.

2 LITERATURE REVIEW

2.1 The concept of small-scale farming

The small-scale farming system is a diversified farming activity which involves cultivating crops and rearing of livestock without the use of advanced and expensive equipment on a small plot of property albeit contributed the bulk-some of World food supply. Whilst the idea of the size of these farms is controversial, it can be argued that farming in the suburbs of cities is in this category on family land plots, conventional farming and smallholdings. In most cases, manual labor and animal-traction, the use of a limited number of agro-chemicals and the supply to local or nearby markets are the characteristic features of this farming process (IAASTD, 2009a).

Small scale farmers contribute over 70 per cent of total Africa's food supply (IFAD, 2003). It is believed to be a sustainable pathway for address nutrition security of the households provided that every effort is made to improve their productivity and efficiency (Wenhold et al., 2007).They hold potential impact in affecting human nutrition through provision of a wide variety of foods in sufficient quantities enough to ensure households' members eat a nutritionally adequate diet. This invariably implies that their greater and more-sustained yields hold may increase access of households to a larger food supply. Also, the introduction of new crops such as under-exploited and traditional crops in the home gardens would help to improve the availability of a variety of nutritious foods at both household and community levels.

It is quite ironical that food insecurity persist among smallholder farmers and majority lived in absolute poverty despite importance their global and regional food production (UN CSD, 2011). Studies' linking agricultural development and poverty does not sufficiently address the role of smallholder farmers but their roles as food producers and their large proportion of the World's poor indicate that the issue about their development significantly could help reduce poverty and hunger as it is predicted that it could have possible positive impacts in sub-Saharan Africa and South Asia.

Small farm holders' supply over 80per cent of the food consumed largely in part of the developing world, which is contributing significantly to poverty reduction and food security (Ayinde et. al., 2020). Land fragmentation is rift with combined problems of underfunding and investment support as well as marginalization of smallholder farmers in economic and development policy threatening

their contribution to national development, leaving majority of smallholders vulnerable to poverty and increasing food import bills (Okolo, 2006).

2.2 Concept of Food Security

Food security is a multidimensional concept that has evolved over time and space. The concern about food security was first taken seriously in mid-1970s due to the international food problems emerging from larger global economic crisis. Initially, the focus was macroeconomic in nature and restricted to assuring the food availability and price stability at international and national levels. Consequently, food security was essentially measured through aggregate food supplies, availability, accessibility, and adequacy.

Rethinking of the concept of food security was due to economic factors, prevalence of drought and famine in some developing regions of the World. Sen (1981), in a seminal publication, thus redefine the food security discussion in the development literature. His contribution helped extend the frontier of food security beyond food availability of food in the macro sense and accommodate individual constraints in accessing food (Webb et al. 2006).

Definitions of food security have evolved over time. In the 1974 World food summit, it was agreed that food security should be defined as availability of adequate amount of food supplies to sustain a steady expansion of food consumption and offset price and production fluctuations at all times (UN 1975). However, it was broaden by 2001 to mean a situation that exists when all people of every age categories and gender have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life at all times all year round (FAO 2002). This definition implies that food insecurity reflects uncertain access to enough and appropriate foods (Barrett 2002). It is clearly known that food security should involve four critical variables namely food availability, access, utilization, and stability of access.

Sen (1981) focused on food availability in a macro sense with a goal to ensure that sufficient quantities of appropriate kinds of food were available from domestic sources, imports, or donor sources (Webb et al. 2006). The focus of both domestic and international policies was therefore on removing constraints to food availability by concentrating on agricultural policy, trade policy, marketing and transportation systems, the role of natural disasters, and the price effects of

economic policies. Eventually, the realization grew that availability was necessary, but not sufficient to promote food security. The concept of food security was expanded to include access.

From the fall-outs of inability of availability of food to clearly define food security, the debate shifted from macro supply issues to focus on the ability of households to obtain food in the market place or from other sources (Webb et al. 2006). Access to food was defined to be physical access to a place where food is available and economic access to purchase the right quantity to stay food secure, as well as a socially legitimate claim to food (Staatz, Boughton, and Donovan, 2009). It is worthy of note that in many developing countries, the availability and access dimensions of food security are strongly intertwined: while availability reflects the supply side of food security, access reflects effective demand. These two concepts are linked by food prices at a given time and location (Staatz, Boughton, and Donovan, 2009).

The third aspect of food security border around the usage of food which include processing, storage, consumption, and digestion; nutritive value and the health of the individuals consuming the food (which affects the ability to absorb and use nutrients) affects food security (Staatz, Boughton, and Donovan, 2009). Providing nutrition education and family management skills is thus another aspect of the process of ensuring food security. The fourth aspect the stability of household access to nutritious food; fear of instability in access to nutritious foods in itself can have significant effect on the production and consumption decisions of households which eventually directly affect the food security experience and outcomes (nutritional and health) and is thus an important consideration.

2.3 Nigerian Agricultural and food insecurity in Nigeria

Hunger and poverty are two twin problems facing Nigeria despite her natural endowment with green area with huge agricultural resource. This characterized the manifestation of Sub-Saharan Africa with largest absolute increase of 72 million people in poverty in the last decade. About 70% of Nigerians lived on about one hundred naira daily which is equivalent to less than one dollar, while youth joblessness is an approximately 90% (Eze, 2003).Informal sector predominate the Nigerian economy with substantial number of the unemployed take up employment in the informal sector (CBN, 2000a).

The poverty syndrome is ironic given the abundant crude oil resources and earning upwards of US$ 15 billion annually (CBN, 2000b). Going by the data under review in this study, less than 10% of Nigeria GDP had been going to capital expenditure while a whopping sum was budgeted for recurrent expenditure (CBN, 2020 Statistical bulletin) hence budgetary problems facing the nation. It is pertinent to ask what intervention option besides the oil sector, does the nation have for sustainable growth?

According to FAOSTAT (2020), Nigeria population stood at around 196 million people in 2018, out of this number only 97.3 million people lived in the rural area representing about 49.65% living in the rural area and more than 95% of rural populace engaged in agricultural activities for survival invariably affecting majority of Nigerians in diverse ways. The persistence of hunger and poverty is largely resultant effects of the failure of the agricultural sector to fully impact positively on the people. As at year 2018, the agricultural sector contribution was ₦27.31 billion representing about 21.43% of the GDP, and the realized income from non-oil export was merely ₦4.53 billion which agriculture contributed about 36.6% of the lump sum through exportation of different staples (CBN, 2020 and FAO, 2020).

Despite the prospects and programs targeted at improving agricultural outlook, Nigeria's agricultural performance remains inadequate, the sector is prone to low productivity irrespective of past strategies and programs for development of agriculture. Major problem of food insecurity is demonstrated by the widening food gap. This gap in food demand and supply is met by largescale food imports coupled with domestic food transfers from major producing areas to other regions to bridge this gap.

Since agriculture and rural development are critical to the nation's socio-economic development implying that any policy aimed at transforming the rural sector is likely to impact on agriculture. But underfunding and poor investment in the rural areas has indirect effects on farmers and rural dwellers who actually deserve government support through infrastructural development, while the relatively well to do urban consumers are well supported with variety of social amenities.

There is need to improve rural agriculture to stem the tide of mass movements of young people to the urban centers in search of white collar jobs that attract relatively better wage than what is offered in the rural areas. Although, small-scale farmers constitute 80% of all farm holdings in the

Nigeria with is the important bedrock for Nigeria's agriculture. However, the current move with emphasis on private sector activities is a strategy for achieving agricultural development as part of the World-wide approach. Regrettably, small-scale farmers appear to have more difficulty in securing production assistance without which efforts aimed at raising productivity to desirable level, improve domestic food supply and increasing income so as to eradicate poverty, mal- and under-nutrition problems will escalate.

It is noteworthy that abundant potentials holds for the future of Nigerian agricultural development owing to the over 98.3million hectares of land available and above 74 million hectares (75.3 percent) found to be suitable for arable, however only about 40% of the agricultural land are estimated to be under cultivation (FAOSTAT, 2018). This presents golden opportunity to explore so as to cancel Nigeria's shortfall in domestic food production and lower the increasing food import on sustainable basis.

2.4 Food Insecurity Outlook in Nigeria

The 2018 estimated population of Nigeria was at 196 million with 97.75 million people living in extreme poverty representing 49.87% of the total population (FAOSTAT, 2020). Also, Food insecurity in Nigeria is currently at alarming rate calling for urgent and immediate intervention. According to Nigeria's ranking in Global Food Security Index (GFSI), food insecurity has continued to increase since 2013. The precarious state of acute food insecurity in Nigeria is occasioned by chronic and hidden hunger, extreme poverty, corruption, conflict events (insurgency in the North East) and unfavorable climate change. Proportion of undernourished increased from 9.3% in 2000 to 13.4% while a slight decrease was reported in stunting from 39.7% in 2000 to 37% in 2019 (FAOSTAT, 2020).

Unfortunately International Fund for Agricultural Development (IFAD) reports rated Nigeria the highest producer of cassava, yam and cowpea globally in 2012 and currently the highest producer of cassava and yam globally as at 2019 reports, the country still persistently remained food insecure and heavily import-dependent. It is quite worrisome that Nigeria with over 74 million ha of land suitable for agriculture (75% of the country size), only 40 percent representing 29.8 million is used for agricultural purposes (FAOSTAT, 2020). A vast majority of the rural household (75% of the 45% of National population) still engages in subsistence farming which can barely feed their

immediate families. Among the associated problems relating to poor agricultural productivity is lack of infrastructural facilities such as good roads, electricity and storage facilities had heightened rural poverty disconnecting rural farmers from needed inputs and markets for their produce (IFAD, 2012; Otekunrin and Sawicka 2019). Poor domestic agricultural production is also escalated by conflict related to insurgency (especially in the Northeast), armed banditry, communal, pastoralist/farmer crisis, kidnapping, cattle rustling, and climate change (FEWS NET, 2020) with attend negative effects evidenced as increasing food import bill and dwindling foreign exchange earnings.

2.5 A Review of the Government's Intervention programs in achieving food security in Nigeria

It is noteworthy that Nigerian government is not relenting in her efforts to solve the national crisis emanating from extreme poverty, hunger and food insecurity among her ever-growing population. Several policies and programs of the Government that are targeted at improving the nutrition with efficient frameworks to tackle food insecurity have been documented, however, they are either short-lived and does not really achieved the desired objectives that are meant to achieve and the fall-out are hereby summarized:

National Policy on Food and Nutrition (NPFN) of 2002 which focused mainly on Food and Nutrition Security (FNS) in different sectors and among different classes of society policy which did not yield needed improvement in nutrition as reported by the Ministry of Budget and National Planning and this occasioned its revision in 2016 better performance (FGN, 2016; Olomola, 2017; Otekunrin et al. 2019a).

Agricultural Transformation Agenda (ATA, 2011-2015) designed and implemented by the Federal Ministry of Agriculture having food security and agricultural productivity as the focal targets of the program with the main components as such as the Growth Enhancement Support Scheme (GESS) to enhance the availability of contemporary agricultural inputs to farmers at subsidized prices, Staple Crop Processing Zone (SCPZ) aimed at enhancing clustered food production, based on the comparative advantage of each region, Agricultural Commodity Value Chain Development (ACVCD) to harness crop and livestock sub-sectors in different agro-ecological zones; Agricultural Marketing and Trade Development Corporations (AMTDCs) in improving

smallholder farmers' access to markets; Agricultural Extension Transformation Agenda (AETA) to enhance diffusion of information and adoption of innovations and Nigerian Incentive-based Risk-Sharing System for Agricultural Lending (NIRSAL) to established to surmount the bottlenecks associated with agricultural commodity and financing value chains (Olomola and Nwafor 2018; Otekunrin et al. 2019a). In this programs, there were estimated 14 million smallholder farmers that benefited from the means-based input subsidies offered by ATA 2011-2014; commodity marketing boards was reestablished for efficient agricultural marketing and also formal lending purposely for agricultural businesses increased from 1% - 6% in 2015 (Olomola and Nwafor (2018) and Otekunrin et al. (2019a).

Other policies and programs geared towards food security and nutrition in Nigeria as documented in Ayinde et al. (2020) are (a) National Strategic Plan of Action for Nutrition (NPAN) (2014-2019) aimed at controlling diet-related non-communicable diseases and promote/strengthen community participation for nutrition interventions; Agricultural Promotion Policy (APP) (2016-2020), a policy seeking to raise awareness concerning nutritious foods and enhancing the quality of food through the control and use of agrochemicals and Zero Hunger Initiative, a strategic framework for achieving Zero hunger target (SDG2) in the country using a multi-stakeholder and multi-dimensional approach in which all sectors have specific goals that must be met.

2.6 Nigeria's annual budget in agriculture 2014-2020

From the table below, Nigeria agricultural expenditure from 2014-2020 is fluctuating which means that their agricultural policy is not consistent. In my own point for a country to be food secure, its agricultural policy must sound and steady. This table shows that Nigeria has a long way to go in its agricultural policy because they haven't met the recommendation of FAO and AU in agricultural policy respectively.

Table 1: Proportion of the Nigeria's annual budget in agriculture 2014-2020

Year	Total budget (#´trillion)	Allocation to Agriculture (#´ billions)	% allocation to agriculture	AU percent recommendation	FAO percent Recommendation
2014	7.50	66.64	0.88	10.00	25.00
2015	5.067	50	0.98	10.00	25.00
2016	6.06	75.80	1.25	10.00	25.00
2017	7.44	31.752	0.42	10.00	25.00
2018	8.612	118.98	1.38	10.00	25.00
2019	8.916	57.677	0.64	10.00	25.00
2020	10.81	160.458	1.48	10.00	25.00

Source: ministry of finance Nigeria; overview of budget 2020.

2.7 Constraining factors against small scale farmers' productivity

Agriculture in Nigeria is characterized by small farmers who produce the large percentage of the country's food requirements. Smallholder farmers are defined as those with less than ten hectares of land. These groups account for approximately 80% of Nigeria's farming population and produce between 80% and 90% of the country's food, but they are the impoverished in the country. (Mgbenka and Mbah, 2016).

Farmers face numerous challenges, including feeding an expanding global population and meeting rising demand, which includes producing more food on fewer acres at the expense of using less arable land, producing high-quality and abundant yields, rearing healthy and numerous cattle, financial security, providing a good education for children, and providing a better home and life for all. Nonetheless, the untapped African land can provide all of these and much more to the diligent smallholder African farmer, as farming is unquestionably a noble and vital profession; without farming, the entire world would perish from hunger.

According to Bader et. al (2013) and Okolo (2006) and Liverpool- Tasie (2001), a number of factors impede farming activities contribution to rural development, such factors hinge primarily on subsistence nature of rural agriculture leading to low productivity, income generation, increased poverty incidence, voicelessness and low participation in the developmental issues in their locality of the farmers. Such major problems are:

- **Poor Marketing**: Marketing is the process of transferring agricultural products from farmers to consumers. Market access is one of the most significant challenges confronting smallholder farmers, directly affecting their income and living standards. Farmers face grave

threats due to a lack of market facilities and lax government regulations, as they are unable to sell their produce at market prices after harvesting. As a result, this results in massive post-harvest losses and food waste, which is an entirely different issue for the agricultural economy. Improved market infrastructure and sound government regulations/policies can go a long way toward assisting impoverished smallholder farmers in marketing and profiting from their harvests.

As pertinent as the issue of agricultural marketing to farming activities, the state of development of market information in the rural areas and the country at large is still primitive coupled with gross insufficient and unavailability of transport systems in the rural areas which often results in heavy post-harvest losses occur due to inadequate storage facilities, especially in times of bumper harvests leading to heavy income loss for the rural farmers areas. According to Mathew & Adeboye (2010), farmers face a variety of marketing challenges, including a lack of market infrastructure, such as scale pens and loading ramps for livestock farmers, a lack of market information, low prices, low-cost food imports from other countries, and high transaction costs. The lack of sufficient markets meant that even farmers who managed to produce products of high quality did not make significant profits from their harvests due to the lack of available markets. As a result of spoilage, the farmers' harvests were lost after they had been harvested. Many of the farmers attempted to sell their produce to large supermarkets, but were told that their produce did not meet the specifications set forth by the supermarkets and that they did not have a certificate for Good Agricultural Practices (GAP). In remote areas of Nigeria, farm produce goes to waste due to farmers' inability to transport their produce to a market for sale due to a lack of storage facilities to keep perishable produce from rotting. There are no good roads, and the majority of remote areas are cut off from the rest of the world (Olajide et al, 2010). To ensure efficient marketing, the transportation system that transports the produce from rural areas where it is grown to urban areas must be in good condition. The majority of rural roads in Nigeria are in appalling condition.

- **Lack of Information**: Limited availability of information is a fundamental challenge that the majority of small and large scale farmers in Nigeria face today, with the majority of farmers missing out on new and improved farming methods, severely limiting their output. Farmers in remote areas suffer the most because they lack access to information due to their inability to afford and operate technological devices; additionally, farmers' illiteracy is a worst case scenario because they are unable to process critical information that makes no difference. The average Nigerian

farmer continues to use primitive farm tools such as hoes and cutlasses, which is a significant setback for the country's agricultural development (Mathew et al 2010).

While information is a critical component of agricultural development programs, Nigerian farmers rarely experience the benefits of agricultural innovations, either due to a lack of access to such vital information or due to its poor dissemination. Agricultural information is frequently not integrated with other development programs, despite the fact that farmers face a plethora of related problems. The absence of agricultural information is a significant factor impeding agricultural development in developing countries. According to Ozowa (1995), agricultural information is primarily targeted at policymakers, researchers, and those responsible for managing policy decisions, with little attention paid to the information needs of the policy decisions' intended beneficiaries (the farmers).

It is safe to say that the information requirements of Nigerian small scale farmers are focused on resolving issues such as pest hazards, weed control, insufficient moisture, soil fertility, insufficient farm credit, labor shortage, and soil erosion. Ozowa (1995) classified smallholder farmers' information needs into five categories: agricultural inputs, extension education, agricultural technology, agricultural credit, and marketing.

- **Storage and Processing**: the lack of adequate storage and processing facilities accounts for divergence between national food security and household food security. A significant quantity of products harvested in Nigeria perishes due to lack of storage and processing facilities. Simple, efficient, and cost effective technologies for perishables, such as roots, tubers, fruits and vegetables, are not as highly developed in the country compared to the storage technologies for cereal grains and legumes. Consequently, post-harvest food storage losses are very high, approximately 40 per cent for perishables, compared to cereal grains and pulses at about 15 percent. Traditional storage facilities have certain deficiencies, including a low elevated base giving easy access to rodents, wooden floors that termites could attack, weak supporting structures that are not moisture-proof, and inadequate loading and unloading facilities.

Across geo-ecological zones, most farmers store only a portion of their crops for consumption. They sell part of their crop early to get cash to pay for their immediate financial obligations, including, in some instances, repaying the production loan to the middlemen. According to

Babatunde et al (2007), because storage infrastructures are frequently inefficient, farmers are unable to defer sales until prices increase, allowing for greater losses. Collective action is frequently advocated as a strategy for minimizing the risk associated with market participation. In a non-competitive market environment, a large number of dispersed small-scale farmers may find themselves competing for a small number of buyers. In this case, buyers hold dominant market positions and set prices, forcing farmers to discard products or face severe financial difficulties.

- **Infrastructural Inadequacies**: Infrastructure in this instance is construed to include physical infrastructure, such as roads and railway system, educational and health facilities, social services such as potable water and electricity and communication system. Agricultural performance in Nigeria is greatly impaired by the low level of development of infrastructure. In the rural areas where majority of the smallholders operate, inadequate infrastructure constitutes a major constraint to agricultural investment, production and trade. In many parts of the country physical and marketing infrastructure is poorly developed, storage facilities are rudimentary and access to information and markets is highly restricted. The situation represents the urban bias in the pattern of development in the country. Infrastructure inadequacy is mirrored by restricted access to the markets, which limit the availability of agricultural products in many areas, and reduces farmers' income.

The Infrastructure constraint has persisted due to government neglect, poor governance, poor political leadership, poor maintenance culture and poor funding. According to Nwafor et al (2011), provision of support services (infrastructure) to emerging farmers continues to be a critical intervention in the agricultural sector for rural development, commercialization, food security, poverty alleviation, and income generation. It is impossible to achieve commercialization of emerging farmers without the provision of appropriate farmer support services. Emerging agriculture, when provided with adequate access to farmer support services, has the potential to contribute to increased agricultural growth, rural development, and a significant improvement on agricultural production.

Infrastructure such as roads, communications networks, transportation routes and agricultural facilities needed to be improved because they were impeding emerging farmers' transition to commercial agriculture. Fencing was required in the farmers' communities. Irrigation equipment

is critical for crop farmers and is required for vegetable farming because water is a basic necessity. Farmers' productivity was found to be limited by the lack of cultivation infrastructure such as cultivation tractors and ploughing implements. (Mathew & Adeboye, 2010)

- **Unstable Input and Output Prices: G**enerally, a major problem inhibiting investment in agriculture is the escalating cost of major farm inputs. The rising prices of inputs are the results of instability in the factor markets arising from instability in macroeconomic policy actions leading to inflationary pressures, high interest rates, and volatile exchange rate. Invariably, the deficiency in macroeconomic policy environment constituted a major constraint to the growth of investment in production of agricultural products. This has a tendency to cause high factor cost to the farmers cultivating agricultural crops. Moreover, the rising prices of fuel have led to rising cost of transportation of farm inputs thus aggravating the rising cost of production. The rising costs of farm inputs combined with dearth of investible funds pose a serious constraint to investment in agriculture. This could lead to reduction in production and domestic supplies of agricultural products. The high interest charges on loans for agricultural production have resulted in escalation of production costs.

- **Agricultural labor:** The issue with availability of labor for farming activities in the rural areas affects the use of farmland in the traditional farming system. Since agriculture in Nigeria is virtually not mechanized, human labor becomes vital in all production systems, accounting for about 90 percent of all farm operations. Under semi-mechanized systems, including animal traction use, human labor use is as high as 70 per cent of all operations. Although farming is largely labor-intensive, farmers, generally often experience seasonal labor shortages. The supply of labor is affected by unending migration of able-bodied youths from the rural to urban areas creating labor shortages especially at peak periods when labor is required for land preparation, weeding and harvesting. Hired labor shortages have driven up the cost of labor making such labor unprofitable to the average smallholder. Exacerbating the migration problem has been the poor agricultural productivity of smallholder farmers and the perception among young adults in farm families that the farm cannot support them and their livelihood. In a study conducted by Olajide, et al (2010), the majority (more than 50%) of respondents agreed that, high labor costs, pests and diseases, insufficient storage facilities, insufficient capital, marketing and transportation issues,

limited access to credit, and high input costs were the major constraints impeding their production activities.

- **Technical Constraints:** In addition, technical constraint in Nigeria affects both the upstream and the downstream segments of agriculture. The constraint manifests in poor technology, poor quality of raw materials and inadequate supply of modern inputs. The main causes of the constraint include low support from government, poor government policy, poverty, low level of awareness, lack of adequate research and increases in the prices of inputs. Poor government support and poor government policy prevent the emergence of innovations from research institutes, thereby curtailing the level of available technically feasible and efficient agricultural practices. Even when they are available, there seem to be communication gaps between farmers (end-users of research efforts) and the researchers. The existence of unified agricultural extension system notwithstanding, there is still poor coordination between researchers, extension agents and farmers. This situation is worsened by the low extension-farmer ratio, which hovers around 1 to 1000. According to Babatunde et al (2007), the principal rational why small businesses in developing countries encounter growth challenges, despite significant government and other organization support, is their technological capabilities, or lack thereof. Despite global technological advancements, small businesses continue to be harmed by a lack of technological implementation. Without this technology, it is challenging for these small businesses to succeed or grow.

The poverty incidence among farmers, which is the highest in the economy, also contributes to the persistence of technical constraint in Nigeria. Thus, farmers are unable to take up new innovations aimed at boosting their productivity and, by extension, their output. The low level of productivity translates to a vicious cycle of poverty, thereby leading to low level of production. The technical constraint is further sustained by high input prices, which is a consequence of inflation in the economy as well as the dependence of the agricultural economy on foreign inputs.

- **Inadequacies in the past policies and programs**: The small business sector's success is constantly threatened by inefficient resource allocation and overregulation of policies... The policies governing the establishment of businesses are extremely complicated and contradictory; consequently, many of these businesses lack an understanding of the laws that govern them,

making compliance difficult. (Nwafor et al 2011). Earlier attempts at improving agricultural production in Nigeria such as the operation feed the nation, the green revolution program and other laudable interventions in the agricultural sector emphasized increased production without commensurate efforts at post-harvest management and industrial utilization.

Most of them handled the various aspects of the post-harvest system such as processing, packaging, marketing, storage, distribution and transportation in isolation from one another. There was no effort to make the system comprehensive and holistic in its management. Also, industrial utilization of agricultural commodities is constrained by inadequate linkage of agriculture to industrial sector. Each program followed haphazard implementation that creates more problems without achieving anticipated goals. Although, most of the programs yielded seasonal increases in agricultural output, inefficient and ineffective post-harvest management and generally low level of industrial utilizations have always resulted in substantial agricultural wastages, food losses, reduction in available food, restriction in its spread over the year, and also reduction in employment and rural income.

The difficulty confronting the local industrial utilization of agricultural commodities is how to initiate and sustain the momentum for diversification of raw agricultural commodities into agro-industry for transformation into high value added products in order to realize and optimize high growth potential that undoubtedly exists in agricultural commodities. This remained worrisome by the dilapidating state of rural infrastructures that hampered effective linkage of agriculture to the industry. This undoubtedly makes investment unattractive to the private sector and thus limiting agricultural development in the country.

Excessive dependence on a narrow range of products as sources of income and foreign exchange earnings bring about a number of unfavorable consequences on the economy. Firstly, it exposes farmers unduly to the vagaries of climate, pests and diseases and to price fluctuations. Secondly it leads to fluctuations in farm income and government revenue. Thirdly, it contributes to environmental degradation. Fourthly, it may result in failure to take advantage of complementarities (e.g. between livestock and crops) and has negative effects on diet, food security and welfare of Nigerians. In addition, an adverse international term of trade facing the primary agricultural commodity sector is a further constraint to growth of the sector. There is a

clear need to diversify production and export base, both horizontally and vertically, from low value added to high value added products.

These numerous challenges confronting Nigerian farmers have an impact on both the local and global agricultural sectors. Agriculture must receive adequate attention in order to strengthen the economy, and smallholder farmers must receive adequate support in order to significantly increase the nation's food security while also boosting their standard of living.

3 METHODOLOGY

3.1 Study Area

Specifically, the research region is Nigeria, which is formally known as the Federal Republic of Nigeria in official documents. It is a country in West Africa that shares land boundaries with the Republic of Benin, Chad, and Cameroon, as well as the Niger River and the Gulf of Guinea in the west, east, north, and south, and the Gulf of Guinea in the north and south. It is located in latitude 9.08° N and longitude 8.67° E, and its climate varies from equatorial in the south to tropical in the center to arid in the north. It is part of the African continent.

Nigeria population was estimated at 196,000,000 people (FAOSTAT, 2020). It has a total land area of 923,768km2, of which 5,000sq miles (see Fig 1) are covered by water, 33.0 percent of the land mass is arable, and 13.0 percent is under permanent agriculture. It has six geopolitical zones or six regions namely, North West (Kano, Zamfara, Kebbi, Jigawa, Sokoto Katsina and Kaduna), North East (Gombe, Taraba, Yobe, Adamawa, Borno and Bauchi). North central (Kwara, Kogi, Nassarawa, Niger, Benue and Plateau), South West (Osun, Lagos, Ondo, Ekiti, Ogun and Oyo), South South (Delta, Rivers, Akwa Ibom, Cross River, Edo and Bayelsa), South East (Ebonyi, Imo, Anambra, Abia and Enugu).

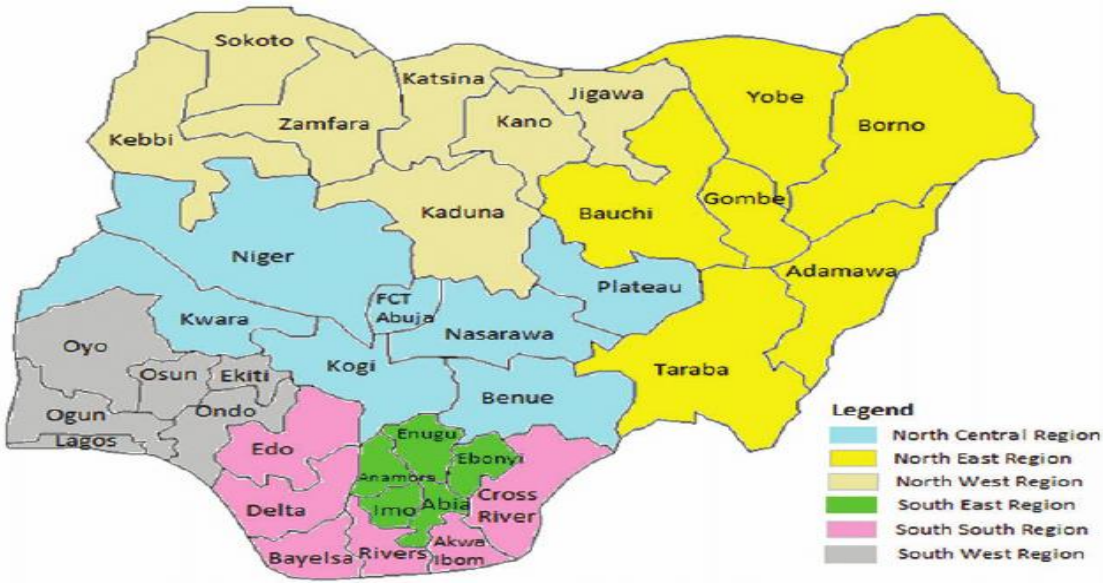

Figure 1 Map of Nigeria showing the regions
Source: Ezra Gayawan

In order to collect the primary data source for the study, Enugu State in Nigeria was chosen as the location for small-scale farmers. Enugu State is located in the geopolitical zone of Nigeria's South East region. It is located 6o30' north of the equator and 7o30' east of the latitude meridian. It shares borders with the states of Abia and Imo in the south, Ebonyi State in the east, Benue State in the north-east, Kogi State in the north-west, and Anambra State in the west. It has a land area of 7,161 km2 (2,765 square miles) and is the 29th largest state in Nigeria in terms of land area out of the country's 36 states (see figure 2).

Figure 2: Geographical map of Enugu State, Nigeria
Source: Enugu State Ministry of Land and Survey

Throughout the year, the weather in Enugu State is pleasant. January and February are the hottest months, with an average temperature of 87.16oF (30.64oC), while November and December are the coldest months, with an average temperature of 60.54oF (16.54oC) (15.86oC). The lowest rainfall of about 0.16 cubic centimeters (0.0098 cu in) is reported in February, while the maximum rainfall of about 35.7 cubic centimeters is recorded in July (2.18 cu in). With an estimated population of 3,267.837 people and a population density of 460 people per km2 (1,200 people per

square mile), it ranks 23rd out of 36 states in terms of population. Rice, cowpea, cassava, yam, and maize are the most widely planted crops in the country.

3.2 Data Collection

The study employed both primary and secondary data. The primary data was obtained from a sample survey of small-scale farmers in all the 17 local government areas of Enugu State through an online google document link, generated by the researcher, and sent to farmers across the region, their email where gotten from IFAD branch , who work with 1143 farmers in the study area. A total of 53 responses was gotten on the google doc link while 44 questionnaires were administered physically to respondents by IFAD official who help me to visit the farms and conducted the survey, who did not have email address and I interviewed 3 farmers through a voice call, which makes it a total of 100 respondents.

To identify the impact of government intervention on small scale farming and its resultant effect on food security, I carried out 2 stages of analysis. At first, the question were used to determine the state of farmers and farmlands, farmers were asked how government polices had influenced agriculture and were asked to name the challenges faced by these policies and way out. The instrument for the survey was designed to collect information about farmer's response on their personal data (sex, marital status, family background and educational background), their farm size (hectares of land they cultivate, dominants crops and animals), those that has received government interventions and key challenges of agricultural interventions and how they felt it could be resolved. For the secondary data, time series data from Food and Agriculture Organization (FAO).

3.3 Data Collection Instruments

There are two major instruments for data collection deployed in this study, survey and interviews (questions like personal data, farm size, if they have received any government intervention, the extent which their farms has improved and the keys challenges facing them and how can government help out), these questions were asked to the experience of farmers, hectares of land they cultivate, the major problem they face in agir-food business and how the government can help

to improve their production in order to attain food security. According to Bandele (2004), survey is a descriptive design that collects data through the use of a representative sample in order to provide a systematic description of an existing situation or phenomenon. It is concerned with the gathering of data in order to describe and interpret existing conditions, prevalent practices, beliefs and attitudes, perspective, interventions and experiences. The instrument for the survey was designed to collect information about farmer's household characteristics, area of farmland, dominant crops, income of farmers on farm produce and the impact of government interventions.

3.4 Methods of Data Analysis

The study employed both descriptive statistics and trend analysis to achieve the objectives of the study. The structure and trend of the food production, food supply and food import and export ratio were described with the use of charts. The variables used are time series; hence the effect of time (time trend analysis) on the included variables was determined in order to achieve objective one.

4 RESULTS AND DISCUSSION

4.1 Food Production and Supply

4.1.1 Food production in Nigeria

The National food production was presented in Figure 1 in 3-years average between 2000–2018 expressed in monetary value as measured by US$/person. It shows that the average value of food production fluctuated between $203 per person to $212 per person within years 2000 – 2016 with average value of $207.2 per person. Unfortunately, it dropped abruptly to $138 per person within years 2015-2017 and dropped by 50% later to a marginal value of $67 per person within years 2016-2018. This declining scenario in National food production can be linked with several challenges faced by farmers in the recent times. The most significant is the issue of insecurity most farming communities in Nigeria; there is high incidence of farmers/herder's clashes, banditry and kidnapping which was at its climax since 2011 in the country. Most farmers in the rural communities who are country's major food producer abandoned their farmlands and fled to other regions for safety. Equally, the activities of insurgency in the Northern region became a major setback to efforts at increasing food production. This is coupled with poor land tenure system, land degradation and poor infrastructural investment into agriculture that had bedeviled local food production in Nigeria and this culminated to decline state of agricultural productivity in Nigeria as played out in Figure 3.

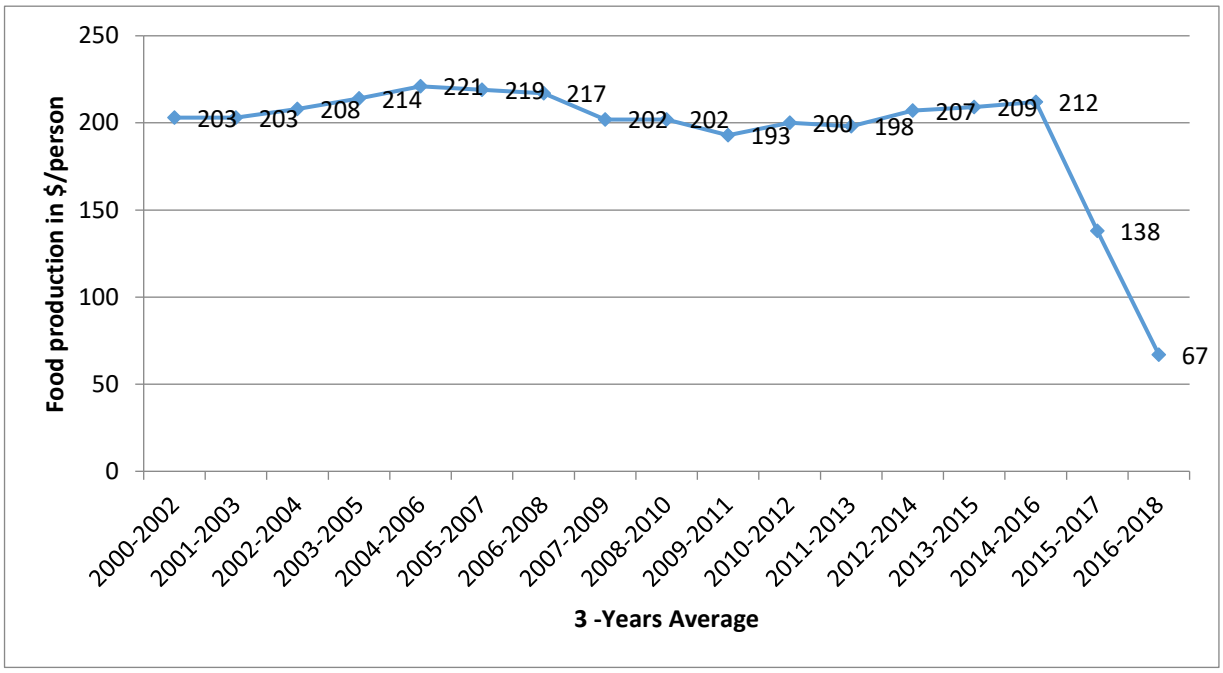

Figure 3: Average value of food production in $/person
Source: *http://www.fao.org/faostat/en/#country/159*

4.1.2: Protein Food supply in Nigeria

Figure 4 presents the average value of protein supply in 3-years average between 2000 – 2018 expressed in g/cap/day. It shows that the average value of protein supply was 58g/cap/day within years 2000 – 2002, rose to an average value of 62.61g/cap/day within years 2003 – 2013 covering a period of 10 years and dropped back to 58g/cap/day within years 2014-2016. In fact, it has maintained an average value of 57.87g/cap/day within the last two periods covering years within 2015-2018. The average value of protein food supply within the time frame covering between 2000-2018 was 57.87g/cap/day. It is an indication that protein food supply in Nigeria remained static in the face of the explosive population growth of Nigeria. Comparatively, this average value of 57.87g/cap/day fell below 65g/cap/day recommended standard (FAO, 2001). It therefore portrayed food insecurity situation for the country for over a period of 18 years.

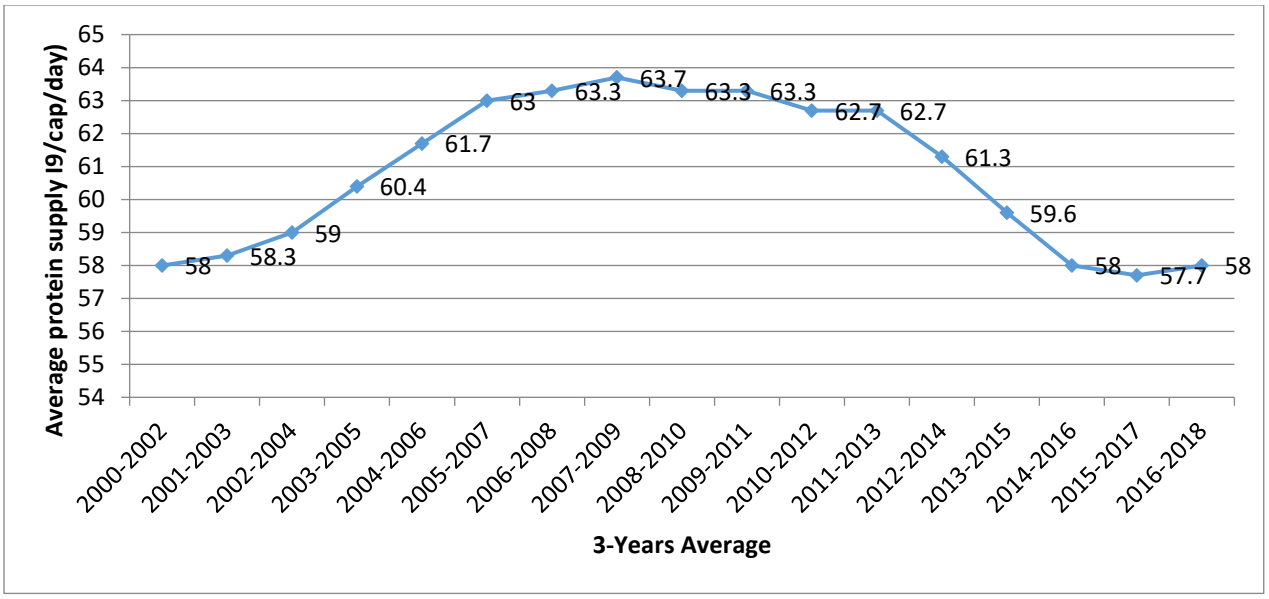

Figure 4: Protein Food Supply in g/cap/da

Source: ***http://www.fao.org/faostat/en/#country/159***

4.1.3 Food Insecurity indices

To capture the National food insecurity in this study, the data on the prevalence of undernourishment, moderate and/or severe food insecurity in Nigeria was obtained from the FAO database and presented in Figures 5 and 6 below: As indicate in figure 5, the average value of prevalence of undernourishment was 8.9% within years 2000-2002 and 2001-2003 respectively. Unfortunately, it rose to 9.4% within years 2015-2017 and continued there on to whooping 14.6% within years 2018-2019. The persistence rising of the prevalence of undernourished persons in Nigeria was noticeable from 2007 – 2009 and it continued to rise thereafter getting to around 14.6%. This is linked with problems of food production shortage to cater to the teeming population particularly in the face of persistence insecurity due to farmers-herdsmen clashes in almost every part of the country.

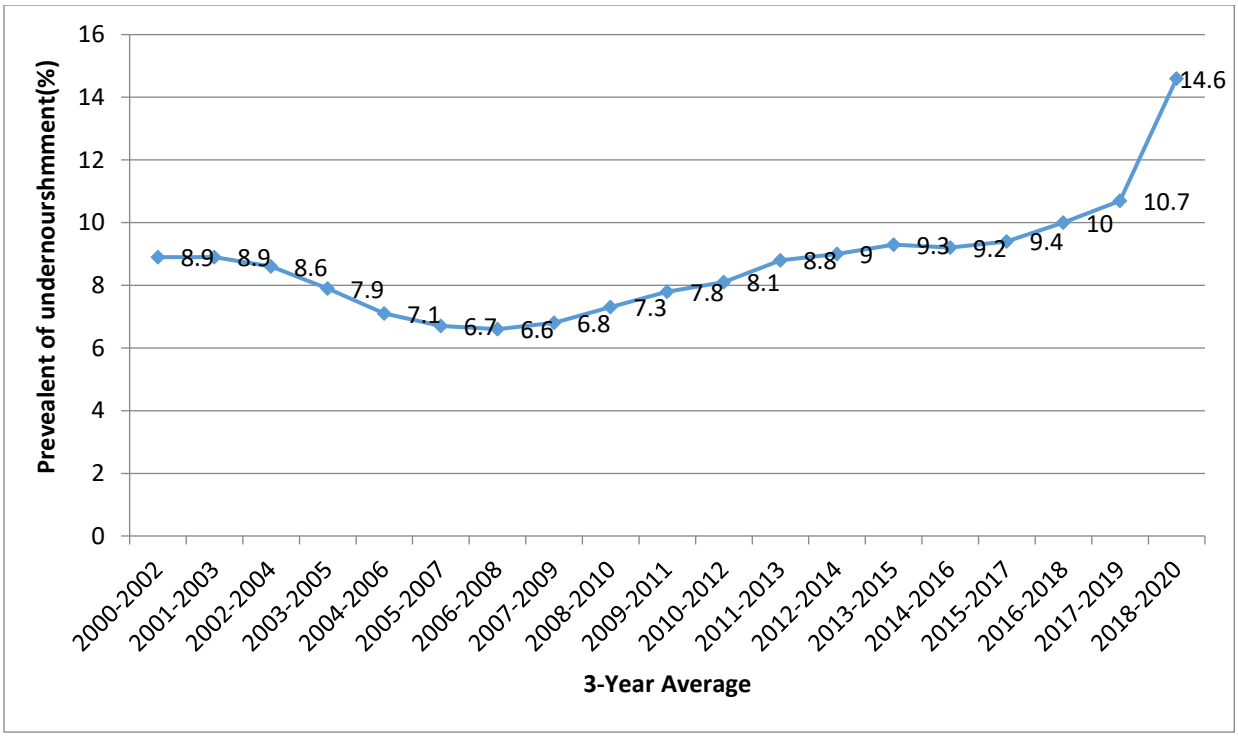

Figure 5: Prevalent of undernourishment expressed in %
Source: ***http://www.fao.org/faostat/en/#country/159***

In order to illustrate the high level of food insecurity in Nigeria, the prevalence of moderate or esevere food insecurity in the total population was presented in Figure 6 covering years within 2014-2020. It was indicated that prevalence of food insecurity was on a consistent increase within the period of years. It was 36.5% within 2014-2016, rose by an average of 3.6% to 40.1% within 2015-2017. Again, it increased by an average of 3.5% within in the subsequent years to 43.6% in years 2016-2018; this trend characterized by continuous increase was unabated as it rose by an average of 4.5% to 47.1% within the years 2017-2919 and a whopping 10.6% increase from its previous level in 2017-2019 to 57.7% within the 208-2019.

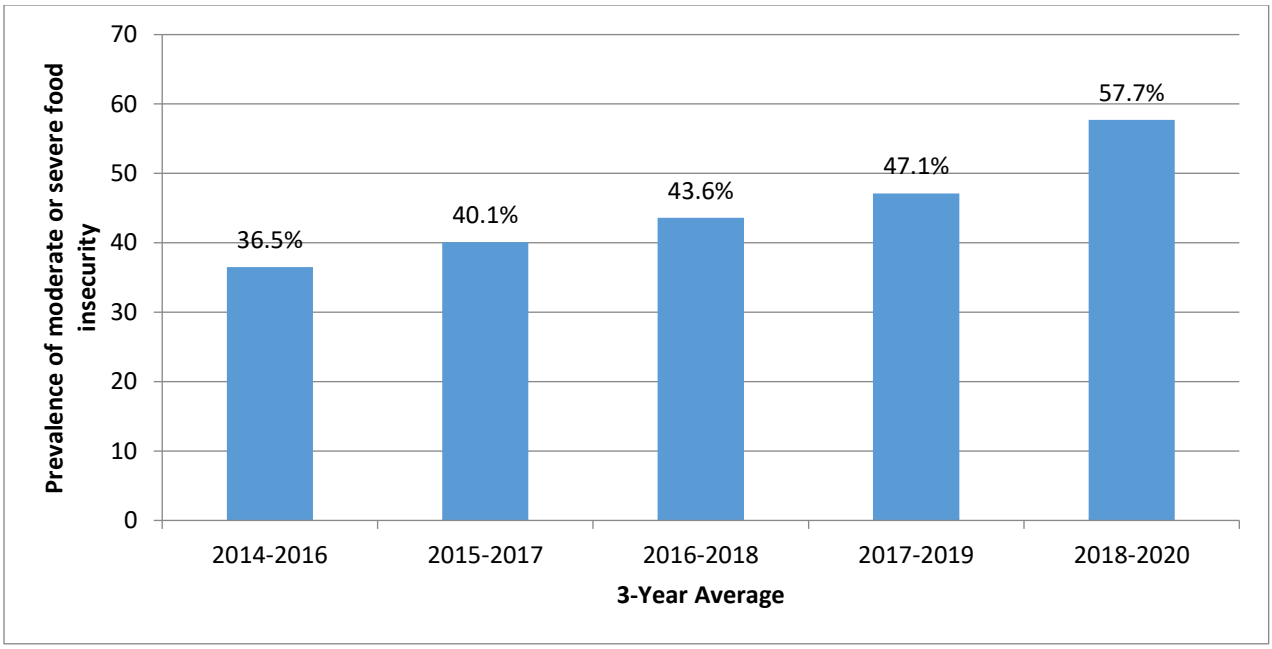

Figure 6: Prevalence of moderate or severe food insecurity in Nigeria
Source: ***http://www.fao.org/faostat/en/#country/159***

4.2 Food Import – Export ratio

Figure 7 presents the ratio of food import to total export value in 3-years average within years 2000-2019. It is expressed in percentage ratio of food import to total export within the time frame. It shows that the average percentage of food import to export value was 7% within years 2000 – 2002, increased to 8% within years 2001 – 2003 and 2002 – 2004 respectively.
It later dropped to 6% throughout a period of years covering years within 2003-2005 and 2008-2010 and slightly fluctuated between 6% and 7% within years 2009-2011 and 2012-2014. It increased to 9% within years 2013-2015 and rose steady till it became 14% within years 2015-2017. This was short-lived as it dropped to 13% in later years within 2016-2018 and dropped further to 11% in subsequent years within 2017-2019.

It is clear that there has been great imbalance in the food import to export in the country. The country has not be food sufficient as illustrated in Figure 3 below: this has continued to rise because significantly. It played out that there is no food sufficiency to feed the teeming Nigeria population. This implies that food import became necessary to fill the food supply gap.

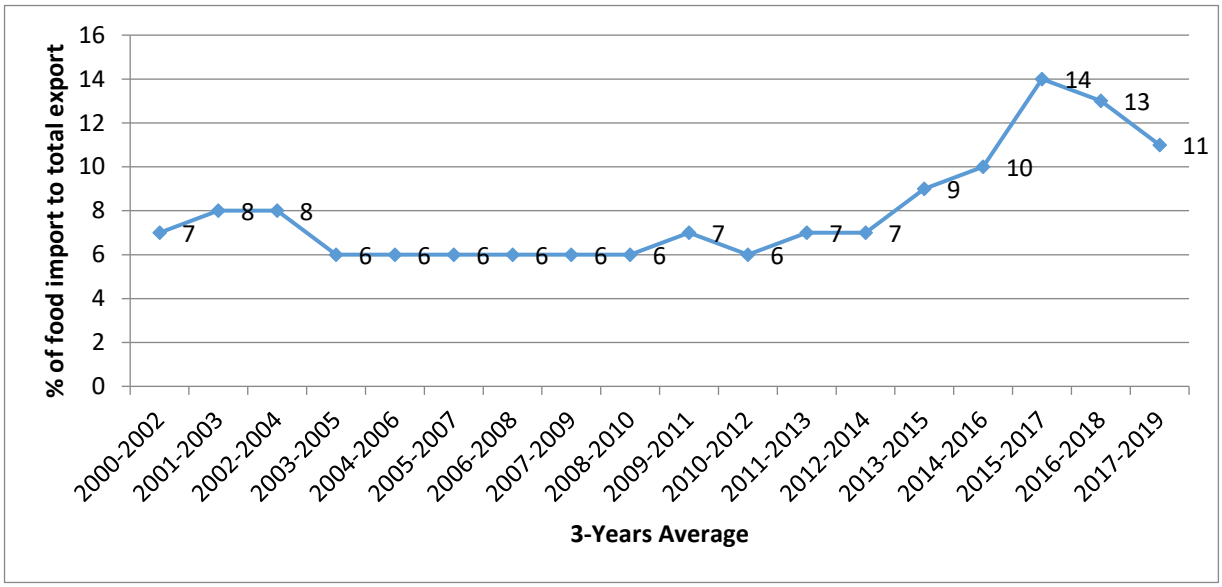

Figure 7: Percentage food import value to total merchandise export value
Source: ***http://www.fao.org/faostat/en/#country/159***

4.3: Socioeconomic characteristics and Agricultural activities of farmers

4.3.1: Socioeconomic characteristics of the farmers

The socio-economic characteristics of the small scale farmers in Enugu State such as age, gender, educational level, farm size, marital status, household size and length of years in farming activities was presented in Table 1. It shows that 51% of the respondents were male farmers while the remaining were female farmers. All the respondents are Christians (100%). About 53% of them were married, 45% of them were single while only 2% of them were separated. About 52% of them have between 2-5 persons, 40% of them have 6-9 persons in the household and only 8% of them had 10 and above persons in the household to cater for and also support them in their farming activities. About 29% of them are between the age ranges of 31-40 years, 16% of them are in the age range of 41-50 years and 9% of them are in the age range of 41-50 and the mean age was 38.51 years.

In addition, about 92% of them had post-secondary school education and only 6% of them had secondary school education. About 62% of them had spent about 3-5 years in farming activities,

20% of them spent 6-9 years and 10 and above years respectively in farming. Around 75% of them employed 2-5 persons, 19% of them employed 6-9 persons as manual and seasonal farm laborers who helped in land preparations and other activities. About 37% of them owned below 1 hectare, 69% of them had 1-10 hectare of farmland, only 2% of them had 11-50 hectare and above 50 hectare respectively used for farming.

Table 2: Socioeconomic characteristics of farmers in the study area

Gender	Frequency	%
Male	51	51
Female	49	49
Religion		
Christianity	100	100
Islam	0	0
Others	0	0
marital status		
Single	45	45
Married	53	53
Divorced	2	2
Household size (persons)		
2-5	52	52
6-9	40	40
10 & Above	8	8
Age (years)		
21-30	1	1
31-40	29	29
41-50	16	16
51 & Above	9	9
Mean age	35.81 years	
Educational status		
Primary	2	2
Secondary	6	6
Tertiary	92	92
Length of years in farming (years)		
2-5	62	62
6-9	20	20
10 & Above	20	20
Mean	5.97 years	
No of employee (persons)		
2-5	75	75
6-9	19	19
10 & Above	6	6

Source: Field survey data, 2021

From Table 2, it was indicated that 50% of the respondents owned the farmland they operated with, 69% of them were owners of the farm business while 31% of them were operating as farm managers. About 66% of them indicated that their farm business was profitable, about 85% of the kept farm records of the activities they engaged on.

Table 3: Farm operation status

land own (hectare)	Frequency	%
Below 1	37	37
1-10	59	59
11-50	2	2
Above 50	2	2
Mean	4.58ha	
Land ownership status		
Owned	50	50
Rented	50	50
Function in the farm		
Manager	31	31
Owned	69	69
Farming profitable		
No	34	34
Yes	66	66
Keep farm records		
No	16	16
Yes	84	84

Source: Field survey data, 2021

4.3.2: Agricultural activities of the small scale farmers in Enugu State

The farming activities of the small scale farmers are presented in figures 7 and 8. As shown in figure 8, about 80% of the crops cultivated was cassava, 58% of them cultivated was vegetables, 52% of them cultivated was maize, 28% of them cultivated was rice, plantain and fruits respectively, 26% of them cultivated was yam, 24% of them was pepper and 14% of them were other crops. This implies that major crops cultivated in the area were cassava, maize, rice, yam, vegetables, plantain, fruits and pepper.

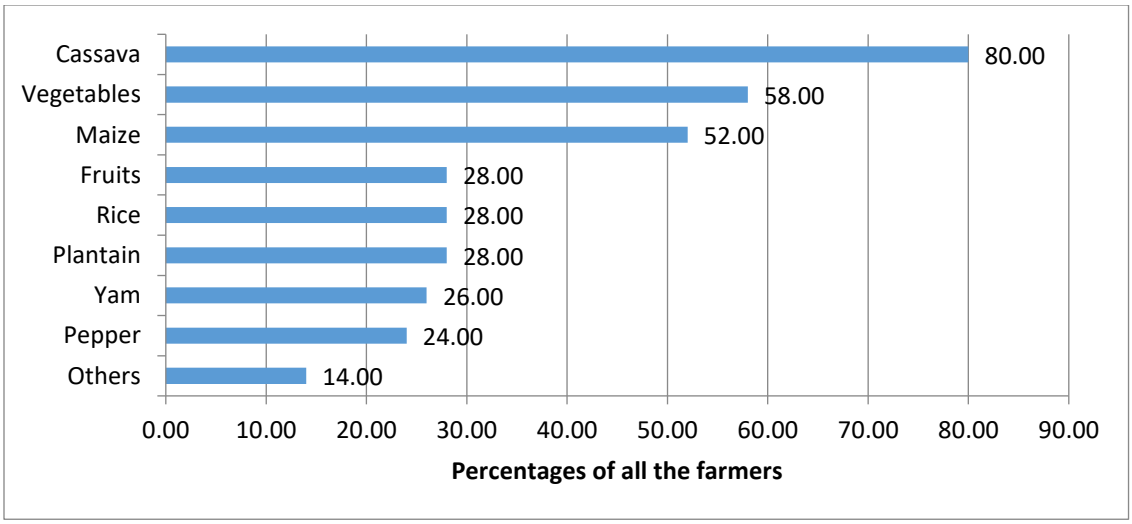

Figure 8: Types of crops cultivated
Source; Field survey data, 2021

In figure 9, poultry was the major animal raised with 64%, 28% of the animal raised was fishery, 18% of them was pigs and goats respectively, 10% of them was sheep and 4% of the animal raised was cattle (cows). This indicated the small scale farmers raised different animals which could help supply protein demand of the populace in the study area.

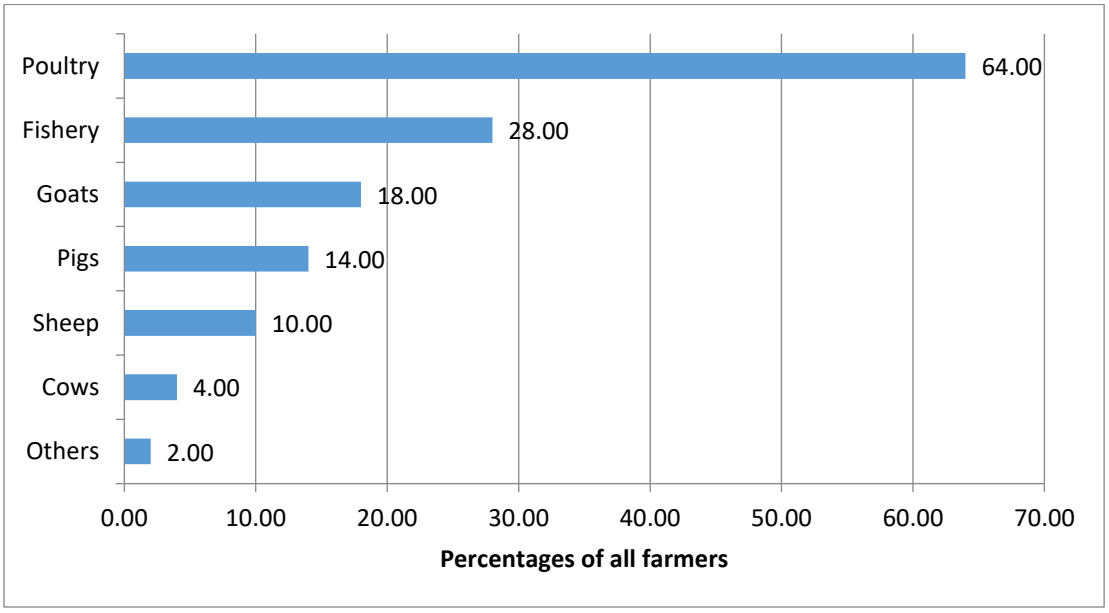

Figure 9: Different types of animal raise
Source: Field survey data, 2021

4.3.3: Farmers that has received government interventions or supports

From Table 3, only 47% of them indicated that government supported their farm business operations while 53% has not received any government interventions or supports in their farming business, this table shows that Nigeria agricultural sector still has a long way to go. The poor interventions maybe due to the challenges the farmers are facing like bad infrastructures, corruptions among the officials and so on.

Table 4: Farmers that has received government interventions or supports

Support from Government	Frequency	%
Without Government Support	53	53
With Government Support	47	47
Extent farm activities improve		
Improved significantly	19	40.43
Improved somewhat	25	53.19
Decline significantly	2	4.26
Decline somewhat	1	2.12

Source: Field survey data, 2021

From figure 10, it was indicated that 40.43% of the farmers' production activities was improved significantly, 53.19% of them indicted that their productivity improved somewhat, 4.26% of them said it declined significantly and 2.12% of them said it decline somewhat in respective of government intervention or not.

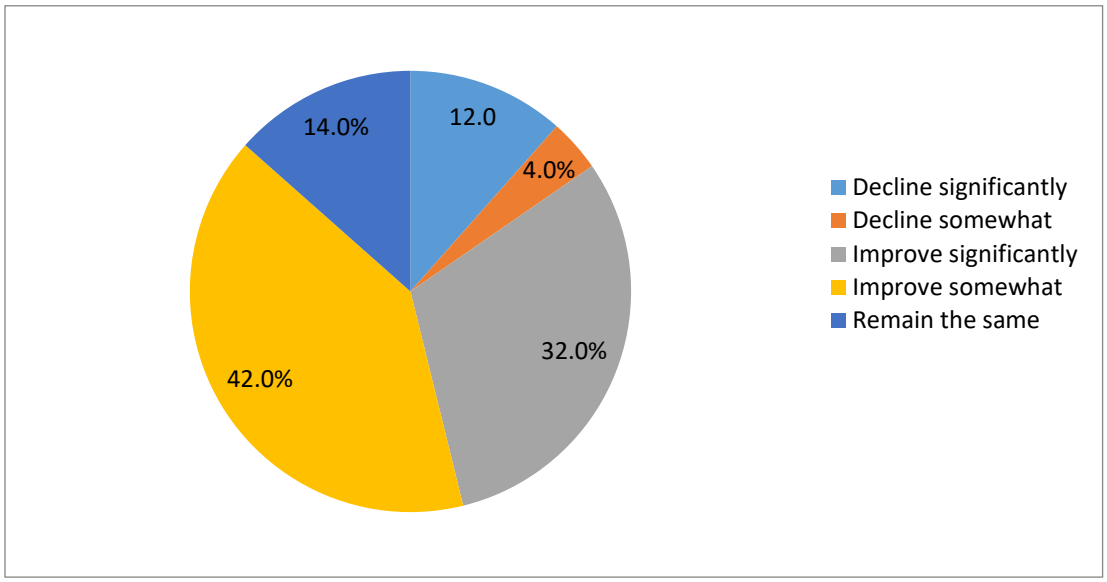

Figure 10: Extent of Farm improvement

Source: Field survey data, 2021.

From figure 11, it was shown that 89% of the respondents had received support in the form of fertilizers, about 64% received improved seedlings, 55% of them received agro-chemicals and agricultural extension services respectively in form of support from government, 45% received fixed assets and 34% indicated others which include other activities such as provision of infrastructural facilities in the farmers' community to enhance their productivity. Only about 21% of them reported that they obtain loan facility as government support. It is therefore implicative that government support farming activities through different supports as listed above however provision of loan remain problematic to the farmers.

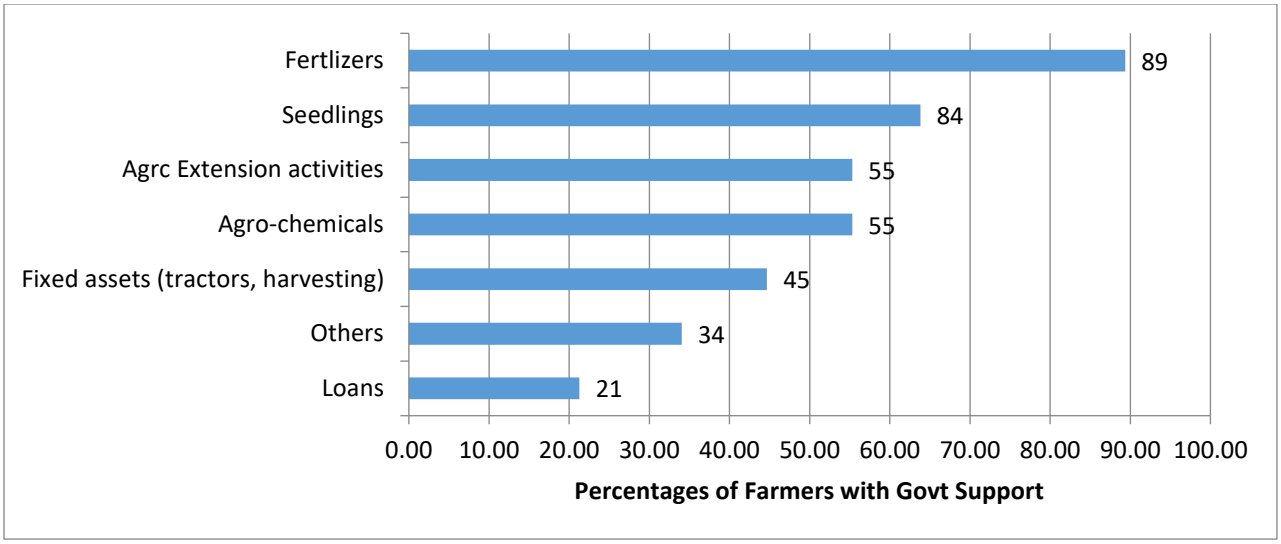

Figure 11: Forms of government intervention and support

Source: Field survey data, 2021

4.3.4: The key challenges faced by small scale farmers in the realization of food security

The key challenges faced by small scale farmers were classified separately for the farmers with and without government supports as shown in figure 12. It indicated that about 55.32% of farmers with government support while a higher percentage (60.38%) of farmers without government support indicated unavailability of finance are a key challenge. Herdsmen attack and civic insecurity as reported by 42.55% of farmers with government support while about 47.17% of farmers without government support reported similar problem; poor agricultural policy formulation was 27.66% and 39.62% of the farmers with and without government support respectively. Inadequate modern farm input was 21.28% and 41.51% for the farmer with and without government support respectively; and information gap due to poor extension services was 17.02% and 30.19% for farmers with and without government support respectively; , poor implementation and targeting of agricultural policy program was 10.64% and 28.30 for farmers with and without government support respectively; insufficient farm infrastructure was 6.38% and 28.30% for farmers with and without government support respectively and high cost of labor was 4.26% and 22.64% for farmers with and without government support respectively. It is well obvious from these distributions that both farmers categories encountered similar challenges in realization of food security especially unavailability of finance and herdsmen attacks and civic insecurity. However, relatively higher numbers of farmers without government support bemoaned

about the problems of insufficient farm infrastructural facilities, poor implementation and policy targeting, poor monitoring and evaluation of agricultural policy and inadequate modern farm inputs than those with government support, to my best of knowledge why the number of farmers without government intervention may include corrupt officials who handle this programs, mode of distribution channel of this supports from government and finally there is not comprehensive database for farmers.

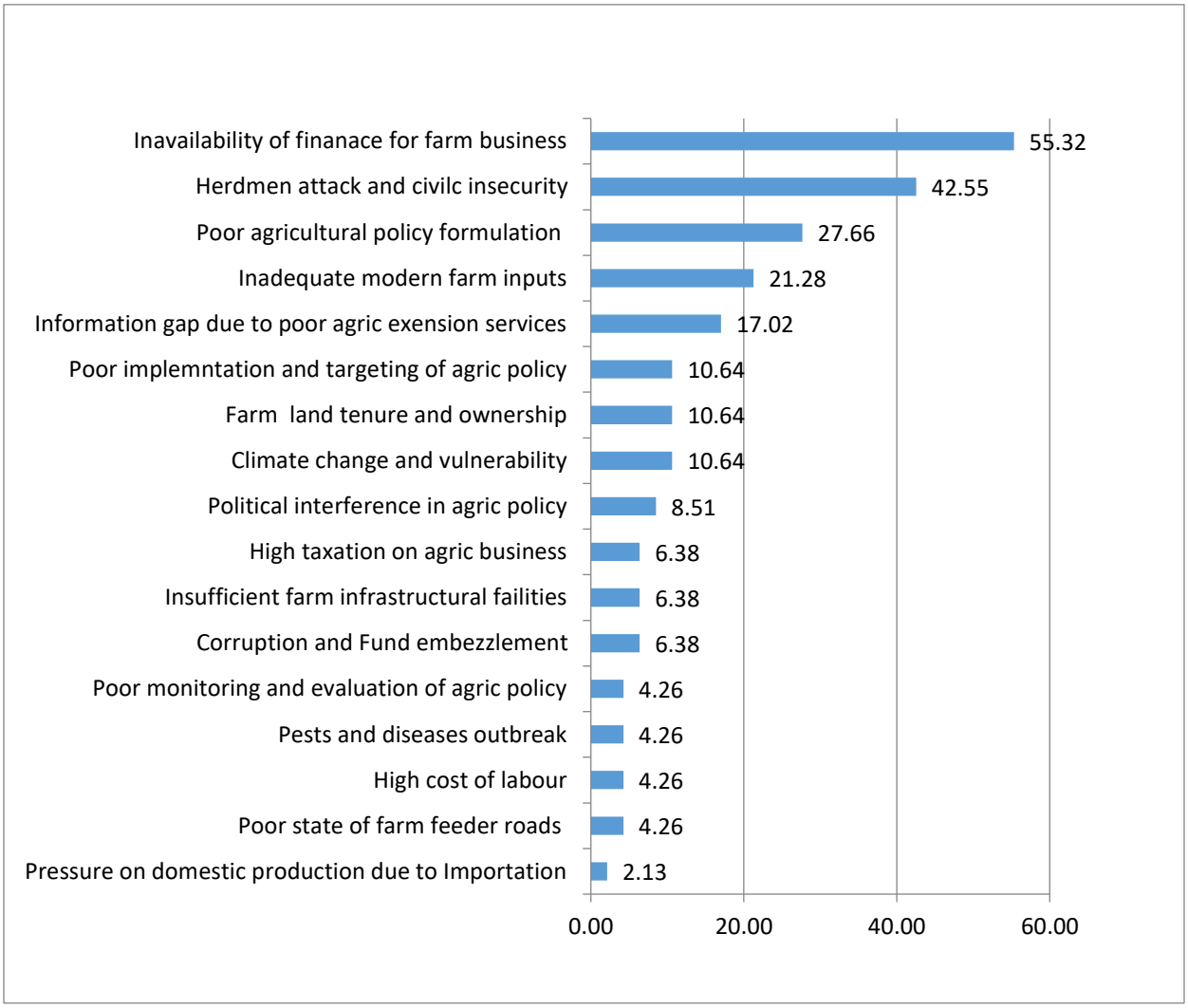

Figure 12: Key challenges facing the realization of agricultural policy as it affects farmers

Source: Field survey data, 2021

4.4: Roles government can play in agricultural activities to improve food security

In order to dissect the roles of government across farmers with and without government support respectively. Distributions of the farmers' categories were classified separately as presented in figure 13. Both farmers' categories exemplified roles of government in ensuring food security as follows: about 57.45% and 56.60% of farmers with and without government support respectively indicated that supply of improved farm inputs; about 40.43% and 64.15% of the farmers with and without government support respectively indicated that there should be increased awareness of farmers about agricultural programs; about 25.53% and 18.87% of farmers with and without government support respectively indicated that government should prioritize land for agricultural production; about 25.53% and 9.43% of farmers with and without government support respectively indicated that there should ban of open cattle grazing to curtail problems of herdsmen attacks on farmers; about 17.02% and 13.21% of them respectively indicated that financial support should provide to farmers.

As outlined in this distribution, both farmers categories desire increased government support to ensure higher food production and security for Nigerian teeming population. Most of their yearning include supply of improved farm inputs, awareness of government programs, and providing land for commercialized agricultural, outright ban of open grazing, provision of infrastructural facilities and financial support for expansion of their farm operations. It is worthy of note that relatively higher farmers without government support were critical about increased awareness of agricultural programs, improved extension services to the farmers, farm mechanization support for the farmers, strengthening of implementation and evaluation of policy and removal of political interference in agricultural policy execution.

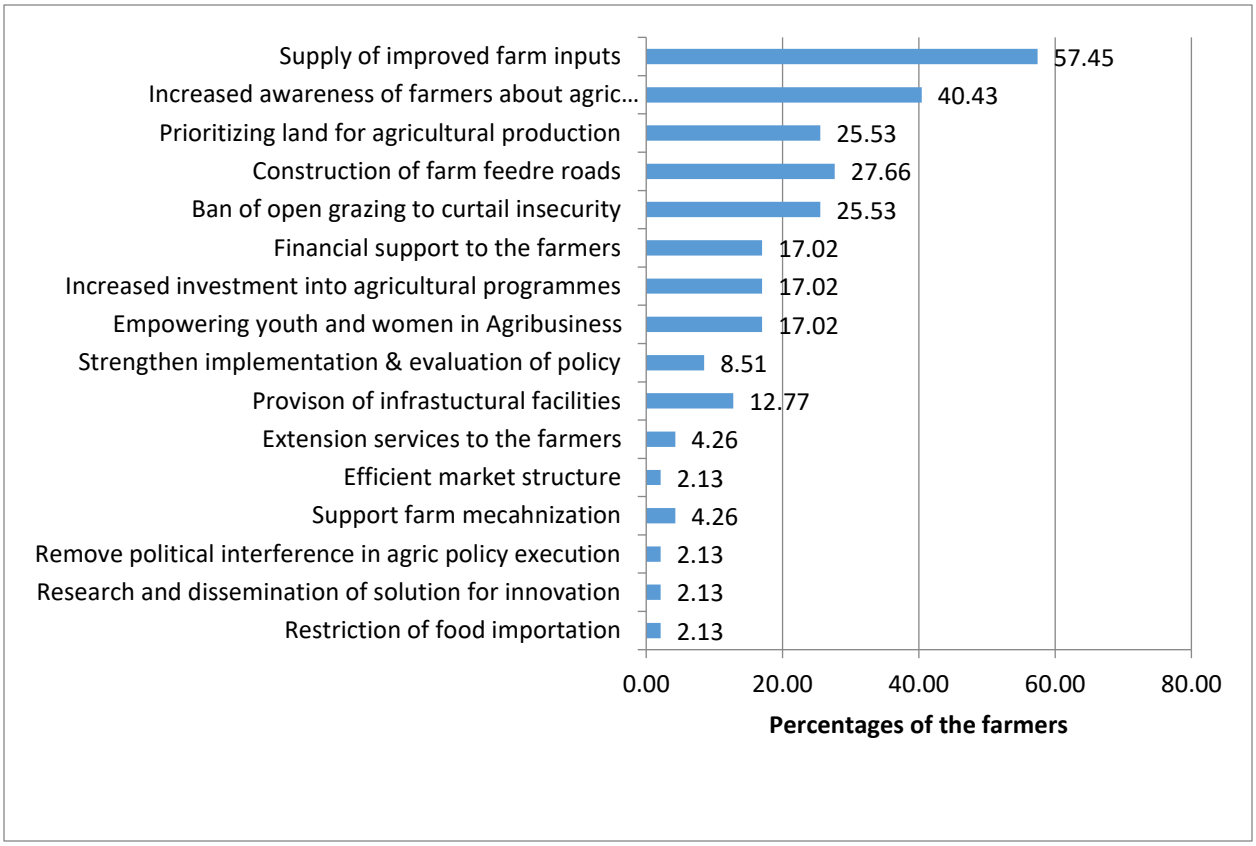

Figure 13: Roles government can play in agricultural activities to improve food security

Source: Field survey data, 2021

5 DISCUSSION

Food Demand, supply and security

According to available statistics as analyzed in this study, Nigeria food production was fluctuating over the years and currently undergoing recession particularly within the years 2014-2018 when the value dropped sharply from $209/person in 2013 - 2015 to $138/person in 2014-2016 and later to abysmal value of $67/person in 2016-2018. This can be associated with declining food productivity in the country occasioned by mirage of problems facing the sector. The low food production has negative influence on the food supply measured in as average of protein food was well below the recommendation daily dietary requirement of 65g/cap/day. Okolo (2006) indicated that Nigeria's food supply has for many years fallen short of demand, for instance food supply was about 103.86 million metric tonnes while food demand which was consistently above the production level was 110.37 million metric tonnes respectively in 2001 creating a huge supply deficit that necessitated demand argumentation through food import.

In addition, the country is neck-deep into food import currently as the percentage of food import value to total export merchandize has continued to rise annually and stood at 11% within years 2012- 2019. This is invariably on choice for the country in meeting short-falls in domestic food supply result to high food import value which consequential effects on the vulnerable group as a result of poverty and food security that deficit food supply can cause. There is manifestation of inadequate feeding takes the form of mal and under-nutrition. The figures of prevalence of undernourishment stood at average value of 14.6% as at 2018-2020 and the prevalence of moderate or severe food insecurity is currently 57.7%. It is reasonable to say that there was a long stay of net food export deficit as food export concurrently fell short of food import over the years and this net trade balance deficit value which implies that Nigeria remains a net importer with regards to agriculture. Okolo (2006)'s findings equally indicated that the percentage of food import bill was in an upward trend between 1990 and 2001 where the percentage increase in import value moved from 7.6% to 22.3%.

This report is quite unfortunate in spite of Nigeria being highest producer of cassava, yam and cowpea globally as reported by International Fund for Agricultural Development (IFAD) in 2012 and FAOSTAT in 2019. The country still persistently remained food insecure and heavily import-

dependent as evidenced in Otekunrin and Sawicka 2019). Olarinde and Abdullahi (2012) and Abolagba *et al* (2010) incited that increased food import bills coupled with the already depreciating exchange rate were the leading cause of food insecurity in the country. With this findings, little wonder why Nigeria's ranking in Global Food Security Index (GFSI) has continued to increase since 2013. According to Economic Intelligent Unit report (EIU) in 2019, Nigeria was ranked 94th out of 107 countries with 48.4/100 score among 113 countries coming in distance behind several African countries such as Ethiopia, Niger and Cameroon.

The socio-economic characteristics of the farmers showed that the farming population was predominately middle age farmers who are still virile and active to undertake agricultural production productively and profitably. Their household size was large enough to employee the cheap family labor in the agricultural operations. Equally, majority of them had substantial years of experience which equip them with relevant agricultural practices that go with length of experience in agriculture. The majority of farmers cultivated crops such as cassava, maize and vegetables an animal raise include poultry, fishery, goats and sheep. These agricultural engagements are expected to meet the energy and protein requirements of the teeming populace in Nigeria provided they are done at large scale level to ensure marketable surplus are produced when the farming households have satisfy their food security needs. Regrettably, the size of land cultivated by the farmers was still within small scale operation with average size of 4.56 hectare. Similar finding was reported by Otekunrin and Sawicks (2019) that a vast majority of the rural household population still engages in subsistence farming which can barely feed their immediate families leaving little or no marketable surplus.

Challenges faced in the realization of these policies in agricultural sector

Major challenges confronting small scale farmers are unavailability of finance to agricultural production. Appalling level of financing in agriculture in comparison with other African nations is also a worrisome issue. "Nigeria spends only 3 percent or less of her entire budget on agriculture. This problem of lack of fund persists in government agricultural programs till today. Misplaced priority, misdirection and diversion of fund to unnecessary components of agricultural programs is very common and pose a serious challenge to policy implementation. Other countries, much smaller than Nigeria, do much more. Iganiga and Unemhilin (2011) and Okuneye (2011) reported

that low government budgetary allocation to agricultural sector and this contributed significantly to the poor performances of the institutional framework for enhancing agriculture in Nigeria.

In addition, poor agricultural policy formulation, inadequate modern farm inputs, poor implementation and targeting of agricultural policy and lack of extension linkage with the farmers and research for diffusion of agricultural innovations are also very disturbing problems confronting small scale farmers in Nigeria. It is undisputable that continued dearth of progress in government policies and programs in agriculture in Nigeria is the consequence of non-interaction between the government and the various stakeholders within a particular program as well as lack of opportunities for decision making and policy dialogue with other stakeholders. Agriculturists, scientists, researchers and more importantly the farmers or rural dwellers are normally ignored during planning and implementation of agricultural development policies and program. These stakeholders are in a better position to identify the policies and programs that will be tailored to the need of the farmers or masses: Their non-participation has led to failure of intervention programs, increased poverty and inaccessibility of basic social amenities with dwindling economic fortune.

Also consequent to challenges such as lack of storage, processing facilities and motor-able feeder rural roads, a lot of Nigeria produce is lost due to lack of proper storage and processing facilities as well as access to markets due to deplorable conditions of rural-urban roads linkage. Most of the agricultural perishable produce at wasted at farm gate and could not reach urban consumers. This contributed to food insecurity in no small measure. There has not been continuity of existing program by incumbent and new administration for the impact of the policy/program to be realized. This is largely due to political instability and interference in agricultural programs and policy. All these changes retarded developmental progress in agriculture and could not do to fulfill their mandate to overcome the Nigerian food crisis. Eme, Onyishi, Uche & Uche (2014); Ambali. & Murana (2017), equally made elaborate discussions about the into problems of agricultural development in Nigeria to include poor access to credit, technical inputs, machines and farm implements (i.e. fertilizers, seeds, pesticides, tractor, plow, poor infrastructure (i.e. rural roads, water supply, storage facilities and market infrastructure), bad and inconsistent government policy, poor budget allocation to agricultural sector and uncontrolled open cattle grazing and associated crises it generated.

Most of the problems of agricultural development stemmed from underfunding of the sector, FAO (2008) reported that an average of 4.74% from 1970-1980, rose to 7.00% and 10% from 2001-2007, but still falls short of 25% that was recommended by Food and organization in 2004 (FAO, 2004). Iganiga and Unemhilin, (2011) in their study stressed that government allocation to agriculture is relatively low and that actual expenditure falls short of budgetary expenditure and the rate of under-spending is usually higher for agriculture than for other economic sectors. The National budgetary allocations of 2020 showed that Federal government allocated paltry 1.34% of the total sum to agriculture which was a sharp divergence to the 2003 Maputo declaration of African Union that 10% of annual budget should be allocated to agriculture by members' countries to enhance food production, create wealth for the actors in the agricultural value chain and reduce escalating malnutrition in African continent (KMPG, 2021). The underinvestment of agricultural sector has played out in gross infrastructural deficits in the farming settlements of Nigeria and declining agricultural productivity.

Problems of insecurity in Nigeria has contributed to decline agricultural production, the issues of Boko-Haram attacks, banditry, kidnapping, armed robbery and cattle rustling remained major security threats to rural communities in Nigeria. The farming households are no longer safe and secure to carry out their activities. Incessant attacks on them prevented majority to leave farming areas and migrate to safer areas. According to FEWS NET (2020), the escalated food insecurity problems stemmed partly from impact of conflicts related to insurgency armed banditry, communal, herdsmen and farmer crisis, kidnapping and kidnapping which were prevalence in almost every parts of the country. Majority of the people who took agriculture as their major source of livelihood were displaced by insurgency and all manner of civic unrest and this disrupted farming activities and other income-generating activities in most cases leading to reduced household income and limited access to food.

6 CONCLUSION AND RECOMMENDATIONS

This study has been able to establish that Nigeria is struggling to cope with increasing food import in the face of short-falls in domestic food supply. These has impacted vulnerable group, particularly small scale farmers arises because of poverty, food insecurity and causes ineffective market forces at the farmers level resulting in consequential effects of low income on small scale farming households.

More so, increasing food import bill over decades as point out is quite colossal causing depletion of our scarce foreign exchange resources to import food most of which ordinarily have local substitutes and invariably fuels local inflation. Regrettably, increasing boko-haram attacks on the farming households is very alarming are pointer to failure of government roles in agricultural programs through investments in the sectors.

Agricultural programs failed woefully to support small scale farmers in improving their productivity which will in extension help reduce the food insecurity and food import bill. The failures were borne out of multifaceted problems arising from inconsistency of government programs and paucity of funds to execute these programs for full realization.

Recommendations

i. There is urgent need for increased government investment into agricultural development particularly in the areas of provision of credits, infrastructural facilities, and research and extension programs.
ii. There is need to out rightly ban open cattle grazing to curtail insecurity arising from herdsmen and farmers clash prevalent across the country.
iii. Efficient market structure to motivate the farmers to engage in intense production activities.
iv. Empowering of youth and women in agribusiness, if the government can employ two young graduate from each communities from Nigeria and train them as agricultural extension workers, by so doing, they are reducing the unemployment rate and add value to agriculture.
v. Prioritizing land for agricultural production and outright removal of political interference in agricultural policy execution.

vi. Invigorating research and dissemination efforts in providing sustainable innovative solutions for agricultural problems.

Further research on this topic is improvement on the distribution channel of government intervention on small scale farmer to conquer food insecurity in Nigeria.

Limitation of the study

The limitation of this study include time to interview the farmers through voice call due to time different from Nigeria and Estonia, the IFAD official couldn't visit enough farms for survey due covid-19 issue. Finally most of the farmers are not technological advanced maybe that's why I didn't get enough response from the online google document link.

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APPENDIX

APPENDIX 1: Questionnaire used for the survey

INTRODUCTORY LETTER

Estonian university of life sciences

Institute of Economics and Social sciences

Agri-food Business Management

MBAGWU IFEANYICHUKWU HENRY.

Research topic: **Importance of Government Intervention in small scale farming to improve on Food Security: A case study of Enugu State Nigeria.**

Dear Sir/Ma,

This empirical survey is carried out in partial fulfillment of my study requirement in the above caption school and your kind support through opinions you share is needed to fulfil the aim of this research.

The questionnaire is designed to obtain information about the above mentioned subject in the least burdensome way and your sincere response based on your knowledge and experience on the questions is highly appreciated. Please note that the information you provide will be handled confidentially and strictly for academic purpose.

Thank you for your kind assistance with the survey.

Yours faithfully,

MBAGWU, Ifeanyichukwu Henry.

QUESTIONAIRE FOR FARMERS

1. Gender: (a). Male (b). Female
2. Religion: (a). Christian (b). Islam (c). Others
3. Marital Status: (a). Single (b) Married (c). Divorced (d). Separated
4. Household size: (a). 2-5 (b). 6-9 (c). 10 and above
5. Function of the respondents in the farm: (a). Owner (b). Manager
6. Age of respondents: (a). 20-30 (b). 31-40 (c) 41-50 (d). 51 and above
7. Education status of respondent: (a). None (b). Primary (c). Secondary (d). Tertiary

8. How long have you been running the farm? (a). 2-5 (b). 6-9 (c). 10 and above
9. How many employees do you have? (a). 2-5 (b). 6-9 (c). 10 and above
10. Is your farm registered with Nigeria's Corporate Affairs Commissions? (a). Yes (b). No
11. How much land do you own? (a). below hectare (b). 1-10 hectare (c). 11-50 hectare (d). 50 and above.
12. Is the farm land owned or rented? (a). owned (b). rented
13. What type of crops or livestock do you raise?

Crops	
Vegetables	
Fruits	
Barley	
Cotton	
Rice	
Yam	
Pepper	
Wheat	
Sugarcane	
Plantain	
Cassava	
Others	
Livestock	
Milk, Yoghurt, Cheese	
Cows	
Chicken	
Pigs	
Fish	
Poultry and Eggs	
Sheep	
Others	

14. Is your farming business profitable during the whole year? (a). Yes (b). No

15. Do you keep written financial records for revenue? (a). Yes (b). No
16. Have you received any form of support or intervention from Government? (a). Yes (b). No
17. If yes, what form of intervention or support?

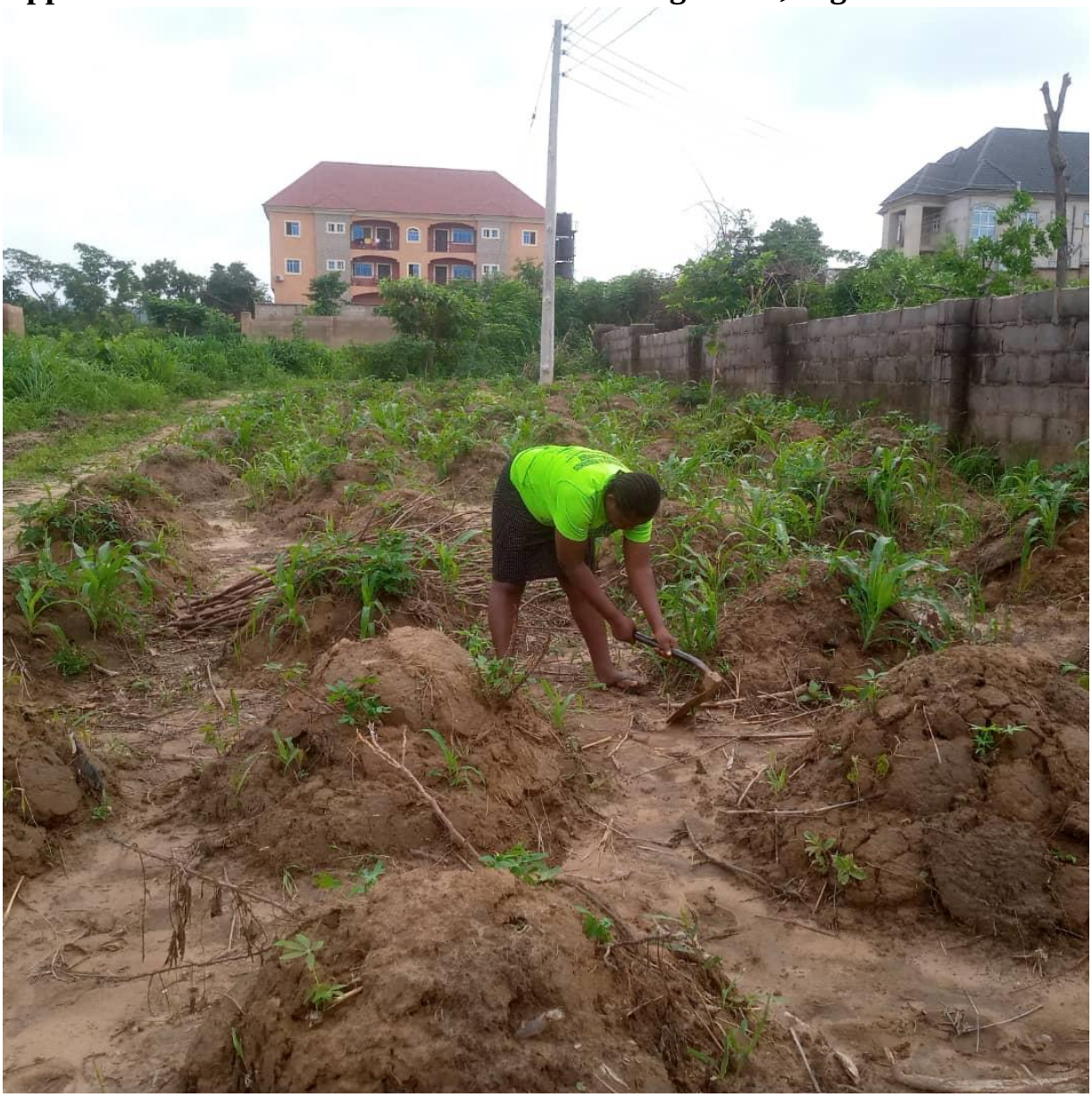
	Seedlings	
	Fertilizers	
	Loans	
	Agriculture extension workers	
	Agro-chemicals	
	Fixed assets (tractors, harvesters etc.)	
	Others	

18. Does the support or intervention you received from Government improve your farm? (a). Yes (b). No
19. To what extent has your farm improved? (a). Decline significantly (b). Decline somewhat (c). Remain the same (d). Improve somewhat (e). Improve significantly
20. What are the key challenges facing the realization of these policies (supports or interventions) in agricultural sector especially as it affects small-scale farmers?
    i…….
    ii……
    iii……...
    iv……...
    v……
21. What roles can Government play to the agricultural sector to ensure food security?
    i…….
    ii……....
    iii……...
    iv……...
    v……

Appendix 2. Small scale pig farmers in Enugu state, Nigeria

Author: Chike IFAD official

Appendix 3. Small scale cassava farmer in Enugu state, Nigeria



Author: Chike IFAD official

Appendix 4: Small scale poultry farm in Enugu

Author: Chike IFAD official

Appendix 5: Small scale farmer selling her vegetables in the new market at Enugu.

Author: Chike IFAD official

Appendix 6. Non-exclusive licence for depositing the final thesis and opening it for the public and the supervisor's (supervisors') confirmation for allowing the thesis for the defence

Hereby I, Mbagwu Ifeanyichukwu Henry

Write your date of birth here 12/02/1993.

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